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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,607	05/10/2001	Heng-An Ko	252103-5970	4898

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EXAMINER

BYLCIW, STEPHEN

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/852,607

Applicant(s)

KO ET AL.

Examiner

Stephen Bylcw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This non-final office action is in response to the application filed in the United States on May 10, 2001. Claims 1 through 11 are pending in this application.

#### ***Specification***

2. The disclosure is objected to because of the following informalities:

Page 11, line 1 through 2: the sentence is not consistent with Figure 5 in the application. The following underlined change is suggested: "... units of the product B available from the warehouse 522 can be the supply 528 of 2500 units of product B for the client B." Appropriate correction is required.

#### ***Claim Objections***

3. Claim 2 and 10 are objected to because of the following informalities: The acronym "CTP" need to be defined within Claim 2. The word "seconds" needs to be replaced by "second" in Claim 10. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 1-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim, the recited process must somehow apply, involve, use, or advance the technological arts. Further, mere intended or nominal use of a component, albeit within the technological arts, does not confer statutory subject matter to an otherwise abstract idea if the component does not apply, involve, use, or advance the underlying process. In the present case, claims 1-11 fail to apply, involve, use, or advance the technological arts. Some examples:

a) Independent claim 1 recites a method of planning a production schedule that includes the steps of entering, searching, and comparing. These steps as claimed do not incorporate technology that would give them patentable weight such as entering information on a computer processor. As a result, claim 1 is non-statutory.

b) Independent claim 2 recites a method of planning a production schedule that includes the steps of entering, subtracting, searching, comparing, and adding. These steps as claimed do not incorporate technology that would give them patentable weight such as entering information on a computer processor. As a result, claim 2 is non-statutory.

c) Independent claim 6 recites a method of planning a production schedule that includes the steps of entering a first sales order, subtracting available product,

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searching for the CTP capacity, comparing the supplied amount, adding the available products, entering a second sales order, subtracting available products, searching for remaining CTP capacity, comparing the second supplied amount, and adding the available products in the second warehouse. These steps as claimed do not incorporate technology that would give them patentable weight such as entering information on a computer processor. As a result, claim 6 is non-statutory.

Dependent claims 3-5 and 7-11 are rejected as being non-statutory based on the same reasoning.

While claims 1-11 produce a useful, concrete, and tangible result, they are deemed to be non-statutory for failing to apply, involve, use, or advance the technological arts. In order to overcome this rejection it is respectfully suggested that the claims be amended to expressly incorporate technology (i.e., a computer processor) as performing at least one of the core steps of the invention.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow (US Patent 6,889,197).**

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Regarding claim 1, Lidow teaches a method of planning a production schedule in a supply chain where the demand is entered/ placed for a product (column 9, lines 36-38). The supply chain is searched to determine the net available products/ capacity/ supply (column 16, lines 1-3). The supply and demand is compared and the smaller is taken as the supply for the order (column 16, lines 11-45).

Lidow does not specifically teach for a product that is subject (or is not subject) to a backend process. It is well known that supply chains produce products that are (or are not) subject to a backend process. It would be obvious to a person of ordinary skill in the art at the time the invention was made to apply Lidow's teachings to a method of production scheduling for a product that is subject (or is not subject) to a backend process because it would be advantageous to share lessons learned at other types of supply chains to a facility that produce a product that is subject to (or is not subject to) a backend process due to efficiency.

**Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow in view of Goldratt ("The Race", published in 1986 with an ISBN of 0-88427-062-9) and in further view of Murthy (U.S Patent 6,044,356).**

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow as applied to claim 1 above, and further in view of Goldratt and in further view of Murthy.

Lidow does not teach a method of determining the balanced supply of the product by searching and comparing to find the smaller of the capacity of the

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semiconductor foundry and the capable-to-promise (CTP) capacity available for the backend process.

Goldratt teaches the production resource with the least capacity dictates the production rate of the facility (see Goldratt page 98, lines 3-4). Goldratt teaches for [production] facilities having capacity resources. A foundry and a backend process are both inherently resources.

Goldratt and Lidow are analogous art in the field of supply chain management. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Goldratt and Lidow and determine the concept that the balanced supply of product is the smaller of the capacity of the semiconductor foundry and the CTP capacity of the backend process and to take the available products as the supply of the sales order because it would be advantageous to increase profit/ reduce cost (Lidow: column 1, lines 26-31; Goldratt: page 134, lines 4-11; application: page 1, lines 17-19).

Lidow does not teach the method that demand is first satisfied with inventory before determining the balanced amount of product still required. Murthy shows that customer orders/ demand are satisfied first with inventory before determining the balanced amount of product still required (column 2, lines 63-64).

Goldratt, Murthy, and Lidow are analogous art in the field of supply chain management. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Goldratt, Murthy, and Lidow to satisfy demand first with inventory, consider the process with the least capacity to determine

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the balanced product still available and to take the available products as the supply of the sales order because it would be advantageous to increase profit/ reduce cost (Lidow: column 1, lines 26-31; Goldratt: page 134, lines 4-11; Murthy: column 2, lines 64-67; application: page 1, lines 17-19).

Murthy teaches for decision support systems for manufacturing operations, but it is very obvious his teachings are applicable to semiconductor facilities having a foundry and a backend process.

Lidow defines a supply chain as "any and all activities associated with defining, designing, producing, receiving, monitoring, storing, and using the components and sub-components used in manufacturing a product" (see Lidow: paragraph 5, lines 6-9). Manufacturing operations and semiconductor foundries with a backend processes are old and well-known in the art and are well-known examples of supply chains. Lidow, Murthy, and semiconductor foundry planners are both in an analogous art for production planning. It would be obvious to a person of ordinary skill in the art at the time the invention was made to consider a manufacturing operation as a supply chain because it involves activities related to manufacturing products. It would be advantageous to view a manufacturing operation as a supply chain because lessons learned in some types of manufacturing operations can be focused on improving efficiency of other supply chains.

The method of production scheduling taught by Lidow, Goldratt, and Murthy can be very obviously applied to the situation of one or a plurality of clients being served by the semiconductor foundry with a backend process according to knowledge generally



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available to one of ordinary skill in the art because the applicant's methodology allows the capacity of the semiconductor foundry to be committed to clients one-at-a-time until the capacity is fully committed or there are no more clients to consider.

**Claims 3-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow in view of Goldratt ("The Race", published in 1986 with an ISBN of 0-88427-062-9) and in further view of Murthy (U.S Patent 6,044,356) and in further view of Krajewski ("Operations Management", published in 1990 by Addison-Wesley with an ISBN of 0-201-50410-3).**

Claims 3-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lidow, in view of Goldratt, and in further view of Murthy as applied to claims 2 and 6 above, and further in view of Krajewski.

Lidow does not teach about different categories of inventory: available-to-promise, production, and predetermined amounts for specific clients. Krajewski teaches about the inventory categories: work-in-process (page 640, lines 17-23), available to promise (page 525, lines 1-4), and customer ordered/ booked inventory (page 522, lines 24-25 and page 525, figure 14.4, row 2). Krajewski defines available to promise inventory as "the quantities of end items that marketing can deliver on specified dates" (page 525, lines 2-4) and since this is not restricted to specific clients during any situation it is interpreted to mean to any client whether specific or non-specific in any situation.

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Krajewski teaches for operations management that he defines as "the systematic direction and control of the processes that transform inputs into finished goods and services" (page 4, lines 12-14). Semiconductor foundries with a backend processes are old and well-known in the art and are well-known examples of operations. Krajewski and semiconductor foundry planners are both in an analogous art for production planning. It would be obvious to a person of ordinary skill in the art at the time the invention was made to consider a semiconductor foundry with a backend process as an operation defined according to Krajewski because it involves processes that transform inputs (silicon) into semiconductor-related finished goods. It would be advantageous to view a foundry with a backend process as an operation because generic lessons learned in other types of facilities having the same characteristics and problems can be focused on improving the efficiency of a foundry with a backend process.

It is also considered very obvious that "work-in-process" is equivalent to "amount of wafer in production" and "customer ordered/ booked" is equivalent to "predetermined amount of wafer for specific clients."

Lidow, Goldratt, Murthy, and Krajewski are analogous art in the field of production scheduling. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Lidow, Goldratt, Murthy, and Krajewski so that:

the sales/ customer order is entered/ placed for a product, the supply chain / foundry is searched to determine the net available products/ capacity,

the smaller of the available products/ supply and the sales order amount is taken as the supply for the order,

the balanced supply of the product is determined by searching and comparing to find the smaller of the capacity of the semiconductor foundry and backend process,

demand is first satisfied with inventory before determining the balanced amount of product still required,

inventory is classified as to whether it is: available-to-promise, production, and predetermined amounts for specific clients, and

the available-to-promise inventory is available to both non-specific and specific clients without situational restrictions.

It would have been advantages to combine these teachings in order to reduce cost/ improve profitability according to knowledge generally available to one of ordinary skill in the art. The method of production scheduling taught by Lidow, Goldratt, Murthy, and Krajewski can be very obviously applied to the situation of one or a plurality of clients being served by the semiconductor foundry, each considered one at a time according to knowledge generally available to one of ordinary skill in the art.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) U.S. Patent 5,630,070 teaches a method for constrained material requirements planning, optimal resource allocation, and production planning provides for an optimization of a manufacturing process.

b) U.S. Patent 5,953,707 teaches a decision support system for the management of an agile supply chain.

c) U.S. Patent 6,393,332 teaches a system and method of scheduling demand for a manufacturing resource in response to a customer order.

d) U.S. Patent 6,415,196 teaches a method for solving finite capacity problems such as how to satisfy a customer request for a manufactured product.

e) U.S. Patent 6,188,989 teaches a method and system for automatically managing available to promise product.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Bylciw whose telephone number is 571-272-8125. The examiner can normally be reached on weekdays, 8AM-5PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB 1 June 2005

  
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